

ARISE - C-130 Hercules 09/09/14 Science Report

Aircraft:

[C-130H Hercules #439](#) ([See full schedule](#))

Date:

Tuesday, September 9, 2014

Mission:

ARISE

Mission Location:

Arctic Ocean

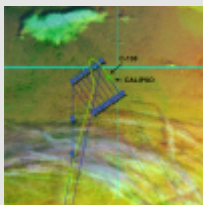
Mission Summary:

CERES Gridbox- Flt 5

Today we conducted a CERES gridbox experiment near 74.5N 141.7W, slightly southeast of the location for the first gridbox experiment. While the first gridbox experiment focused on the radiation in the upper atmosphere, this flight was focused close to the surface. The goal was to characterize the surface radiation budget in a 100x100 km region over variable surface conditions under clouds, to acquire in-situ measurements clouds aloft, and to characterize the atmospheric state profile with the aircraft meteorological sensors. The area was blanketed with thin low clouds with some cirrus present overhead, particularly later in the flight. The low cloud tops were found to be about 2100 ft, and the C-130 was able to penetrate and survey below the cloud bases found near 550 ft. The C-130 flew a lawnmower pattern through the gridbox at 500 ft, periodically climbing into and above the low level deck for in-situ data and above-cloud radiation measurements. Sea-ice conditions were broken in the area with the higher concentrations generally found on the southern ends of the flight legs, although some higher concentrations were found in some areas in the north. All of the C-130 instrumentation worked well today, acquiring data throughout the flight, which included times coincident with satellite overpasses by TERRA (2), AQUA(2), NPP(2), CALIPSO, CloudSat, METOP-A and METOP-B satellite overpasses. At the end of the low level patterns, the C-130 made a level ascent, profiling to 22kft, and later acquired some LVIS data over several permafrost sites on the way back to Fairbanks.

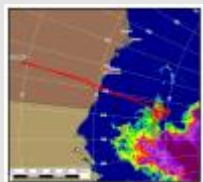
Images:

September 9, 2014 Figure 1



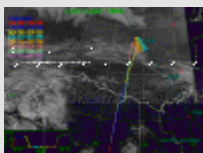
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September 9, 2014 Figure 2



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September 9, 2014 Figure 5



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Submitted by:

William L. Smith Jr. on 09/10/14

Related Flight Report:

C-130 Hercules 09/09/14 - 09/10/14

Flight Number:

CERES Gridbox - Flight #5

Payload Configuration:

ARISE

Nav Data Collected:

No

Total Flight Time:

7.7 hours

Submitted by:

Cate Easmunt on 09/10/14

Flight Segments:

From:	PAEI	To:	PAEI
Start:	09/09/14 18:20 Z	Finish:	09/10/14 02:00 Z
Flight Time:	7.7 hours		
Log Number:	141002	PI:	Christy Hansen
Funding Source:	Bruce Tagg - NASA - SMD - ESD Airborne Science Program		
Purpose of Flight:	Science		

Flight Hour Summary:

	141002	151004
Flight Hours Approved in SOFRS	229	
Flight Hours Previously Approved		88.7
Total Used	140.3	18.2
Total Remaining		70.5

151004 Flight Reports

Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining
10/02/14 - 10/03/14	Cal Flight	Science	8.6	8.6	80.1
10/04/14	Transit	Transit	9.6	18.2	70.5

Source URL: https://airbornescience.nasa.gov/science_reports/ARISE_-_C-130_Hercules_09_09_14_Science_Report

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Flight Reports began being entered into this system as of 2012 flights. If there were flights flown under an earlier log number the flight reports are not available online.

141002 Flight Reports

Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining
08/24/14	Engineering Check Flight	Check	2.8	2.8	226.2
08/29/14	Boom Calibration Flight	Check	0.5	3.3	225.7
08/30/14	Project Check Flight	Check	5.2	8.5	220.5
09/01/14	Transit (1 of 2)	Transit	8.7	17.2	211.8
09/02/14	Transit (2 of 2)	Transit	6.6	23.8	205.2
09/04/14 - 09/05/14	Arctic Ocean - Flight #1	Science	6.6	30.4	198.6
09/05/14 - 09/06/14	140W Sea Ice - Flight #2	Science	7.1	37.5	191.5
09/06/14 - 09/07/14	Ice ZigZag-Terra - Flight #3	Science	7.1	44.6	184.4
09/07/14 - 09/08/14	CERES Gridbox - Flight #4	Science	8.4	53	176
09/09/14 - 09/10/14	CERES Gridbox - Flight #5	Science	7.7	60.7	168.3
09/10/14 - 09/11/14	MIZ Lawnmower - Flight #6	Science	8.8	69.5	159.5
09/11/14 - 09/12/14	CERES Gridbox - Flight #7	Science	7.5	77	152
09/13/14 - 09/14/14	CERES Gridbox - Flight #8	Science	8.3	85.3	143.7
09/15/14 - 09/16/14	CERES Gridbox - Flight #9	Science	8.1	93.4	135.6

09/16/14 - 09/17/14	Radiation Wall Pattern - Flight #10	Science	8.3	101.7	127.3
09/17/14 - 09/18/14	CERES Gridbox - Flight #11	Science	7.2	108.9	120.1
09/18/14 - 09/19/14	Sea Ice Albedo/CryoSat - Flight #12	Science	8.6	117.5	111.5
09/19/14 - 09/20/14	Radiation Wall Pattern - Flight #13	Science	8.3	125.8	103.2
09/21/14 - 09/22/14	Sea Ice & Radiation - Flight #14	Science	8.2	134	95
09/24/14 - 09/25/14	Gridbox TOA+Surface - Flight #15	Science	6.3	140.3	88.7